

**AMENDMENT TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of claims:**

1. (Previously presented) A vacuum arc source including a target with a surface for operating an arc discharge, wherein the target is arranged in an effective area of a device for producing a magnetic field, said device for producing the magnetic field comprising at least two magnet systems with opposite poles and being designed so that the component  $B_{\perp}$  of the magnetic field perpendicular to the surface has basically constant values or is zero over a greater part of the surface.

2. (Previously presented) The arc source in Claim 1, the value of the perpendicular magnetic field component  $B_{\perp}$  being smaller than 30 Gauss.

3. (Previously presented) The arc source in claim 1, wherein the greater part of the surface extends from the middle of the target surface to the rim, and so that the greater part includes at least 50% of the geometrically determining mass or masses of the target surface.

4. (Previously presented) The arc source in claim 1, wherein on the rim of the target surface, the values  $B_{\perp R}$  of the perpendicular magnetic field component rise, fall and/or change signs compared to the values  $B_{\perp M}$  of said field in the middle of the target surface.

5. (Previously presented) The arc source in claim 1, wherein the value of the parallel magnetic field component  $B_{\parallel}$  is basically zero in the middle and rises linearly in the direction of the rim of the target surface.

6. (Previously presented) The arc source in claim 1, wherein a first of the at least two magnet systems with opposite poles includes at least one first electromagnetic coil placed behind the target.

7. (Previously presented) The arc source in claim 6, the first coil having inner dimensions that basically coincide with a deviation from a maximum of plus/minus 30% with a projection of the outer dimensions of the surface.

8. (Previously presented) The arc source in claim 1, a first of the at least two magnet systems with opposite poles comprising one or more permanent magnets placed behind the target.

9. (Previously presented) The arc source in claim 8, said one or more permanent magnets having low field strength, or having a distance from the target such that the field strength on the surface of the target is low.

10. (Previously presented) The arc source in claim 6, wherein a second of the at least two magnet systems with opposite poles has at least one second coil arranged coaxially to the first magnet system.

11. (Previously presented) The arc source in claim 10, the second coil being placed behind the first magnet system.

12. (Previously presented) The arc source in claim 10, the second coil being placed at some distance in front of the target.

13. (Previously presented) The arc source in claim 10, wherein the second coil includes the first magnet system at least partly coaxially.

14. (Previously presented) The arc source in claim 10, the second coil having a higher number of windings and/or a larger diameter than the first coil.

15. (Previously presented) The arc source in claim 1, the target being connected as a cathode.

16. (Previously presented) The arc source in claim 1, the target being connected as an anode.

17-32. (canceled)

33. (Previously presented) The arc source in claim 1, the value of the perpendicular magnetic field component  $B_{\perp}$  being smaller than 10 Gauss over the greater part of said surface.

34. (Previously presented) The arc source in claim 3, said greater part includes at least 60% of the geometrically determining mass or masses of the target surface.

35. (New) A vacuum arc source including a target with a surface for operating an arc discharge, wherein the target is arranged in an effective area of a device for producing a magnetic field, said device for producing the magnetic field comprising at least two magnet systems with oppositely oriented poles and being designed so that the component  $B_{\perp}$  of the magnetic field perpendicular to the surface has basically constant values or is zero over a greater part of the surface.

36. (New) The arc source in Claim 35, the value of the perpendicular magnetic field component  $B_{\perp}$  being smaller than 30 Gauss.

37. (New) The arc source in claim 35, wherein the greater part of the surface extends from the middle of the target surface to the rim, and so that the greater part includes at least 50% of the geometrically determining mass or masses of the target surface.

38. (New) The arc source in claim 35, wherein on the rim of the target surface, the values  $B_{\perp R}$  of the perpendicular magnetic field component rise, fall and/or change signs compared to the values  $B_{\perp M}$  of said field in the middle of the target surface.

39. (New) The arc source in claim 35, wherein the value of the parallel magnetic field component  $B_{\parallel}$  is basically zero in the middle and rises linearly in the direction of the rim of the

target surface.

40. (New) The arc source in claim 35, wherein a first of the at least two magnet systems with oppositely oriented poles includes at least one first electromagnetic coil placed behind the target.

41. (New) The arc source in claim 40, the first coil having inner dimensions that basically coincide with a deviation from a maximum of plus/minus 30% with a projection of the outer dimensions of the surface.

42. (New) The arc source in claim 35, a first of the at least two magnet systems with oppositely oriented poles comprising one or more permanent magnets placed behind the target.

43. (New) The arc source in claim 42, said one or more permanent magnets having low field strength, or having a distance from the target such that the field strength on the surface of the target is low.

44. (New) The arc source in claim 40, wherein a second of the at least two magnet systems with oppositely oriented poles has at least one second coil arranged coaxially to the first magnet system.

45. (New) The arc source in claim 44, the second coil being placed behind the first magnet system.

46. (New) The arc source in claim 44, the second coil being placed at some distance in front of the target.

47. (New) The arc source in claim 35, the target being connected as a cathode.

48. (New) The arc source in claim 35, the target being connected as an anode.